

Claims

1. A hydraulic circuit (1) for controlling a system of a clutch and a brake (2) with separate clutch (3) and brake (4) in the main drive (5) of a mechanical press, wherein clutch (3) and brake (4) are movable by a piston/cylinder unit (6) between the coupling position (7) and the braking position (9) and wherein the piston/cylinder unit (6) can be connected communicatively to the pressure line (10) by a press safety valve (9) for torque generation at the clutch (3) and wherein the brake (4) is spring-loaded (12) against the engagement direction (11) of the clutch, characterized in that, parallel to the press safety valve (9), a metering piston unit (13) is connected by a bidirectionally passable hydraulic connection (14) to the piston/cylinder unit (6).
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2. The hydraulic circuit according to claim 1, characterized in that the nominal diameter (15) of the bidirectionally passable hydraulic connection (14) is greater than the nominal diameter (16) of the discharge line (10) of the press safety valve (9) to the piston/cylinder unit (6).
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3. The hydraulic circuit according to claim 1 or 2, characterized in that the bidirectionally passable hydraulic connection (14) is free of mounted inserts that reduce the flow cross-section.
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4. The hydraulic circuit according to one of the claims 1 to 3, characterized in that the metered oil volume is selected such that upon reaching the end positions (17, 18) of the clutch/brake combination (2) there is still practically no torque generation occurring at the clutch (3) or the brake (4).
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5. The hydraulic circuit according to one of the claims 1 to 4, characterized in that the metering piston unit (13) has a limited stroke without mechanical end
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stops.

6. The hydraulic circuit according to claim 5, characterized in that the limited stroke is adjustable from the exterior.
- 5 7. The hydraulic circuit according to claim 6, characterized in that the limited stroke is adjustable by a motor.
- 10 8. The hydraulic circuit according to one of the claims 1 to 7, characterized in that the metering piston unit (13) has a main control circuit (22) and a pilot control circuit (23) arranged parallel thereto, and in that the main control circuit (22) has in the supply line and discharge line (25) a greater nominal diameter (24) than the pilot control circuit (23).
- 15 9. The hydraulic circuit according to one of the claims 1 to 8, characterized in that the control of the metering piston unit (13) comprises a hydro-mechanical position control circuit (21) for controlling changing volumes in the case of changing fluid-technological parameters.
- 20 10. The hydraulic circuit according to one of the claims 1 to 9, characterized in that the metering piston unit (13) is connectable by a leakage compensation valve (27) to the pump line (10).
11. The hydraulic circuit according to one of the claims 1 to 10, characterized in that the metering piston unit (13) is hydraulically damped when approaching the end positions.
12. The hydraulic circuit according to one of the claims 1 to 11, characterized in that a pressure reducing valve (28, 29) is provided, respectively, for reducing suddenly increasing braking and coupling moments.